

**The Knowledge Bank at The Ohio State University**  
**Ohio State Engineer**

**Title:** Back Matter

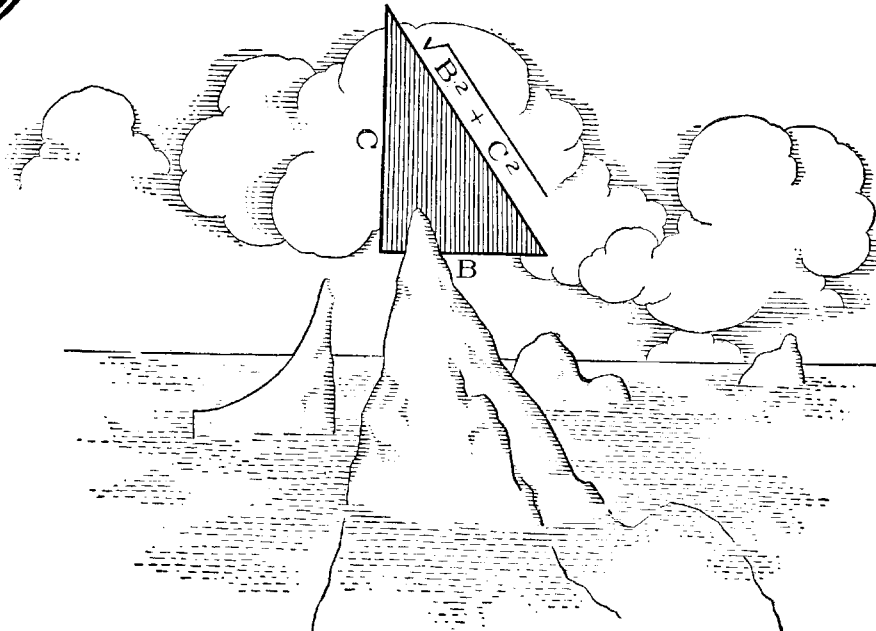
**Issue Date:** Apr-1926

**Publisher:** Ohio State University, College of Engineering

**Citation:** Ohio State Engineer, vol. 9, no. 3 (April, 1926), 37-41, 43, 49-52.

**URI:** <http://hdl.handle.net/1811/33805>

**Appears in Collections:** [Ohio State Engineer: Volume 9, no. 3 \(April, 1926\)](#)



## Master of Icebergs

—a new kind of college degree

**M**ASTER all the intellectual icebergs you sight at college, and your degree will mean something.

The cold facts you learn, like  $a^2=b^2+c^2$ , are but the visible tops of these icebergs. Underneath, as with floating ice, lie the other eight-ninths.

Facts are of little importance till you see them in relation to their great underlying principles. The facts of mathematics strike deep into the other sciences. The facts of history strike deep into sociology, ethnology, geography.

That is why an engineer who learned Ohm's Law can develop a great telephone exchange and control its fascinating forces.

Viewed thus, the endless array of dry facts and dull figures that seem to crowd the years brighten and beckon with a challenge—to look deeper, ever deeper.

*Published in  
the interest of Elec-  
trical Development by  
an Institution that will  
be helped by what-  
ever helps the  
Industry.*

*Published for the Communication Industry by*

***Western Electric Company***

*Makers of the Nation's Telephones*

# PREPARE FOR YOUR JOB

## The Explosives Engineer

*Is Devoted to the Technology of Drilling, Blasting,  
Loading and Transportation of Coal, Ore and Stone*

THE EXPLOSIVES ENGINEER, now in its fourth year, is taking a higher place every month in the industrial press of the country and of the world. Its circulation is spreading wherever there is mining, quarrying, or construction. Each issue contains practical, usable information for the man who expects to take his place in the explosives consuming industry.

In February, for instance, there is an authoritative article on blasting in the construction of the Philadelphia subway. Another article describes a new seismograph which, with explosives, is used in determining geological structures. From his twenty-four years of explosives' experience around mines, the

author of "Advice to Coal Blasters" has compiled some practical blasting information. "Road Building Above the Clouds" tells why and how Continental Divide highways are drilled without the aid of modern equipment. There is a portrait and a biography of S. A. Taylor, the next president of the American Institute of Mining and Metallurgical Engineers. And, of course, a Blaster Bill cartoon and the usual bibliography of all articles on drilling and blasting and a list of new patents, digested from the technical press of the world. You can see it in the college library, but you will want a complete file of your own. Send in your subscription on the coupon.

## THE EXPLOSIVES ENGINEER

WILMINGTON

*Published Monthly*

DELAWARE

NEW OFFER—LESS THAN THREE CENTS A MONTH

THE EXPLOSIVES ENGINEER,  
941 Delaware Trust Bldg.,  
Wilmington, Delaware.

### SUBSCRIPTION RATES

United States—3 yrs.	-	\$1.00	1 yr.	50c
Other Countries—3 yrs.	-	2.00	1 yr.	\$1.00

I am enclosing \$1.00 for a 3 years' subscription to The Explosives Engineer, to begin with the current issue, if it is not already exhausted. (This rate applies only to the United States.)

Name .....

College .....

Course ..... Class .....

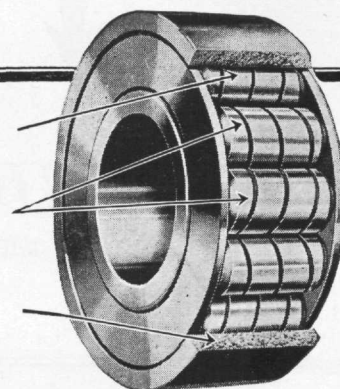
City ..... State .....



Please send me entry application and rules of the National Safety Competition for The Explosives Engineer Trophy, conducted under the auspices of the United States Bureau of Mines. Check if desired.

# Don't Expect Hyatt Performance From Any Old Bearing

- 1 Sturdy steel rollers held in a strong cage support the bearing loads on a full line contact with a rolling motion instead of the rubbing friction of plain bearings.
- 2 Right and left spirals insure a constant circulation of oil over all bearing surfaces. No part of the bearing can possibly run dry.
- 3 The steel races inside which the rollers operate are of the proper hardness and toughness to keep wear to a minimum, thus insuring dependable operation for years without bearing adjustment or replacement.



**H**YATT Roller Bearings—built of finest quality steel—operate faultlessly under the most severe conditions.

They easily absorb overloads so often imposed on industrial equipment, and return economies—even under adverse circumstances—in the form of lower power and lubricant consumption and frictionless, carefree service.

Thirty-five years' experience manufacturing dependable roller bearings is at your disposal, when you specify Hyatt.

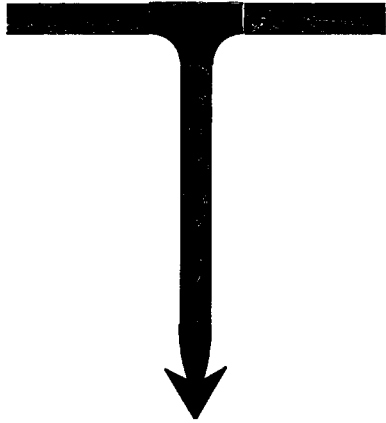
One third of a century of study and development of bearings for countless industrial, automotive and agricultural applications is behind every recommendation made by Hyatt engineers.

When you specify Hyatt Roller Bearings you are assured of a lifetime of carefree, economical service. Don't expect like service from just any old bearing that happens to fit the hole. HYATT ROLLER BEARING COMPANY, NEWARK, N. J.

# HYATT

## ROLLER BEARINGS

FOR GOOD THINGS  
TO EAT AND DRINK



**HENNICKS**

AT THE GATE OF THE CAMPUS

## The Exchange of Used Books

AND OUR

**10% Immediate Rebate**

Have Saved The Students  
Thousands of Dollars



**Long's  
College Book Store**

Established 1902

*"Rounding out a quarter century of service"*

## OUR ADVERTISERS

American Gas Manufacturers Co.  
American Sheet and Tin Plate Co.  
Bailey Meter Co.  
Block's Floral Co.  
Brown & Sharp  
Carper's Cafeteria  
Cast Iron Pipe  
The Crane Co.  
Columbus Blank Book Co.  
College of Engineering, O. S. U.  
Cotner's Pharmacy  
Du Pont  
The Foundation Co.  
Franklin Asphalt  
General Electric Co.  
Gust's Shoe Repair  
Hercules Powder Co.  
Hyatt Roller Bearings  
Huffman-Wolfe Co.  
Hennicks  
Koehring  
Legg Printing Co.  
Lufkin Rule Co.  
Ohio State Lantern  
Long's College Book Store  
Mississippi Wire Glass Co.  
Mt. Vernon Bridge Co.  
National Paving Brick Co.  
Otis Elevator Co.  
The Pease Co.  
Phillips Printing Co.  
Rider's Pen Shop  
Timken Roller Bearings  
Westinghouse E. & M. Co.  
Western Electric Co.  
Weinman Pump Co.  
J. G. Wilson Co.  
Varsity Supply Co.

## *Start Right*

See to it immediately—your pen and pencil should be in good working order if you expect to do satisfactory work this Quarter.

We are the only pen specialists in the city, and have made pen and pencil repairing our profession. We repair all makes and give you 24-hour service.

**RIDER'S PEN SHOP**

FOUNTAIN PEN HOSPITAL  
at College Book Store H. B. Fowler, Prop.

## ***BLOCK'S*** ***University Florist***

*Just Around the Corner at 16th Ave.*

***EAT---Anything***  
***OH BOY***

*Its a treat*

***Carper's Cafeteria***

*10th Ave. and High St.*

ADams 9341

*The*  
**PHILLIPS PRINTING**  
**COMPANY**

257 CLEVELAND AVENUE

*We Specialize in*  
*Fraternity Printing*  
*and*  
*Campus Publication Work*

## **Books and Supplies for** **Engineering Students**

Get Your College Supplies  
At the Reliable Store

**Varsity Supply Co.**

1600 N. High St. - 11th Ave. & High

## ***Delicious Drinks*** ***Temptingly Served***

**ENGINEERS!** Do you appreciate how many engineering products serve to make up one of our delicious "Malted Milks".

The marble-fountain, glassware, silverware, motor driven electrical mixer, the Malted Milk and all the ingredients that help to make it, as well as the transportation facilities required for each, are all products of the science of engineering.

ORIGINATORS OF BIGGER AND  
BETTER "MALTED MILKS"

*Get the habit---Visit our fountain often*

**COTNER PHARMACY**  
1716-18 N. High St., Next to State Theatre

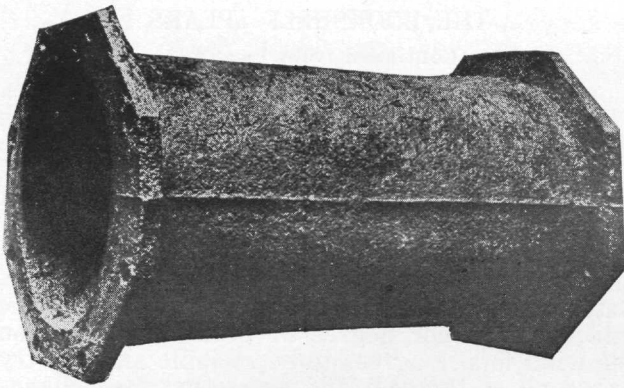
## ***You'll Smile With*** ***Satisfaction***

When you wear fit-to-measure  
**Satis-Factory Shoes**

**Gust's Shoe Repairing**

Sixteenth Avenue and High Street  
Basement





## Still in Service After 250 Years

**A** HUNDRED years before Napoleon was born, before his wars scourged Europe, before the French Revolution raged, this Cast Iron Pipe was laid, in the reign of Louis XIV, to supply water to the fountains of Versailles.

To the patient researches of M. Blanc, Chief Inspector of the Water Service of Versailles and Marly, into dust-covered volumes in the garrets of the Palace of Versailles, we owe the proof of its antiquity.

A report from the Director of the Water Service, M. Blanc's chief, says: "From their actual state of preservation, which is excellent, excepting the assembly iron bolts, these conduits seem to be able to furnish service for a very considerable time longer."

The high resistance of this Cast Iron Pipe to corrosion may be judged from the clearness of the fine "parting line" produced by the old horizontal method of casting.

THE CAST IRON PIPE PUBLICITY BUREAU  
Peoples Gas Building, Chicago

## CAST IRON PIPE

Our new booklet, "Planning a Waterworks System," which covers the problem of water for the small town, will be sent on request



Send for booklet, "Cast Iron Pipe for Industrial Service," showing interesting installations to meet special problems

## TYPE "LLB"

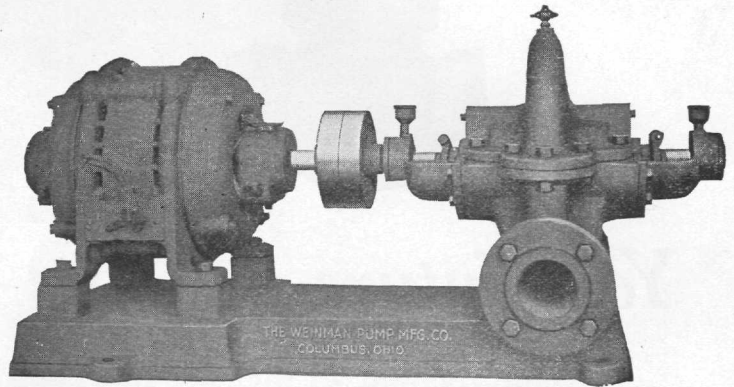
BALL BEARING

Single-Stage

Horizontally Split Casing, Double-Suction  
Centrifugal Pumps

Pumping Machinery for All Purposes

Figure 492



Write for Bulletin

THE WEINMAN PUMP MFG. CO.  
COLUMBUS, OHIO, U. S. A.



### Rolling Steel Doors

*For durable service*

Wilson Rolling Steel Doors installed twenty years ago are still giving excellent service. By rolling overhead and out of the way, they save valuable floor space in Warehouses, Piers, Railroad and Industrial Buildings. They also offer maximum fire resistance and discourage theft. Easily operated by hand, gearing or motor.

Send for 72 page descriptive catalog No. 42

**The J. G. Wilson Corporation**  
Established 1876  
11 East 38th Street, New York City  
Offices in all principal cities



## INDUSTRIAL BUILDINGS SHOULD BE WELL LIGHTED.

From the employer's viewpoint, the big difference between men who work out of doors and those who perform tasks inside the building, is the factor of light. Daylight furnishes sufficient illumination outside during the daytime working hours for men to pursue their tasks efficiently and safely. But the proposition of getting enough daylight into the interior of industrial buildings, requires some thought.

It is not a difficult problem by any means, and any employer can take advantage of daylight and utilize it for lighting his building during the daytime, if he desires. It is an excellent light, especially suitable for the eyes, reducing eye strain and eye weariness to a minimum, and has the great economic advantage of costing nothing.

To utilize daylight to the utmost, we must first provide means for allowing daylight rays to enter the interior of buildings in sufficient quantity—namely, proper and adequate windows and skylights. Many excellent instances of buildings designed with a due regard to the importance of daylight lighting can now be seen in many of our industrial cities. Such buildings present the appearance of being practically all windows—"window walled," as they are termed—and this type of daylight construction is coming rapidly into favor, because it constitutes a more healthy building for large numbers of employees, both from the lighting and ventilation standpoints.

Among those who have constructed this type of modern industrial building may be mentioned: The Shredded Wheat Co., Gillette Safety Razor Co., Lyon & Healy Piano Co., H. J. Heinz Co., Corona Typewriter Co., Skimmers Macaroni Co., Grape Juice Co., Dodge Bros., Nelson Valve Co., Piston Ring Co., Remington Arms Co., and a great many others.

The Larkin Co., Philadelphia, has erected a building almost entirely glass, 85% being windows, and the Loomis Breaker, operated by the D. L. & W. R. R. Co., Nanticoke, Pa., is literally a glass house, being 93.5% of glass. The new buildings of the Winchester Repeating Arms Co. have an average glass area of 58%.

An investigation covering 18 buildings constructed by the Aberthaw Const. Co., Boston, shows that the average window area is 57.5%.

These figures indicate how important the subject of lighting is now considered by employers of industrial labor, and how well the idea has been carried out by the architects and engineers, in order that all parts of a building may receive sufficient daylight. But, in addition to providing ample window space, there is another factor which is equally important, and that is, equipping the windows with the proper glass.

The bright direct rays of the sun should not be permitted to strike the eye, and we must provide a means for reducing the glare to rays which will not be too bright. This is accomplished by glass especially manufactured for industrial windows, known as Factrolite. This glass possesses the property of breaking up the intense rays of the sun and diffusing the light into the interior of the building in proper portions, solving the problem of sun glare.

If you are interested in the distribution of light through Factrolite, we will send you a copy of Laboratory Report—"Factrolited."

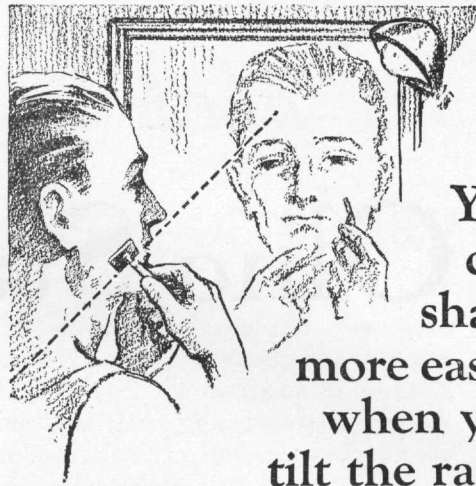
MISSISSIPPI WIRE GLASS CO.,

220 Fifth Avenue,

St. Louis.

New York.

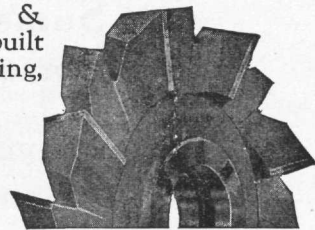
Chicago.



**You  
can  
shave  
more easily  
when you  
tilt the razor**

**W**HEN you shave you tilt the razor so that the blade will shear off the hairs. It cuts a great deal more smoothly that way than if you drew it straight down on your beard.

The Brown & Sharpe engineers built this easier cutting, shearing principle into a milling cutter by "tilting" the cutting edges of the teeth, with the result that they shear easily into the metal.

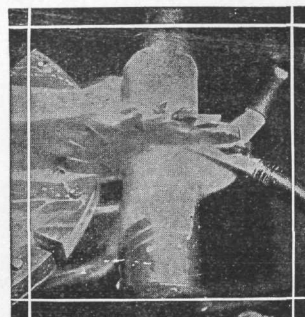


Note the alternate spiral angles of the "staggered" teeth and their substantial backing.

To further improve the efficiency of the cutter they alternated this "tilt" or spiral angle and "staggered" the teeth. Also, the teeth were well undercut and furnished with a rugged backing. The result is a cutter with plenty of chip clearance that will take easily and rapidly deeper cuts, especially in steel.

This cutter is called the Brown & Sharpe Staggered Tooth Side Milling Cutter. It will remove a large amount of metal without de-

structive vibration and chatter, the enemies of high production milling.



Deep cuts in steel like the above are conclusive evidence of the superiority of Brown & Sharpe Staggered Tooth Cutter Design.

There is considerable information about cutters and their design in the New No. 30 Small Tool Catalog. A copy will be sent free at your request.

**BROWN & SHARPE MFG. CO.**  
PROVIDENCE, R.I., U.S.A.



# *The* Ohio State Lantern

Is recognized as the official campus publication.

It prints all news of student interest.

Sums up student opinion thru its editorials.

Serves as an index in telling the student when and where to buy.

---

---

*Subscribe for The Lantern*  
*Advertise in The Lantern*

---

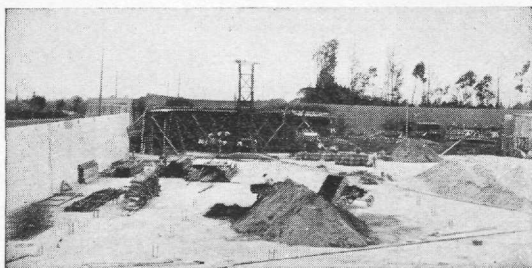
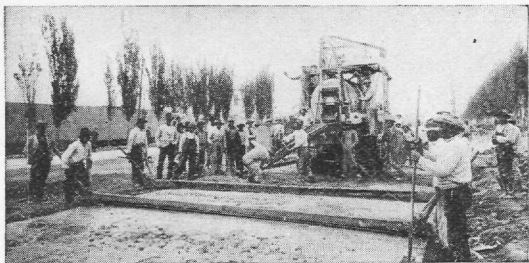
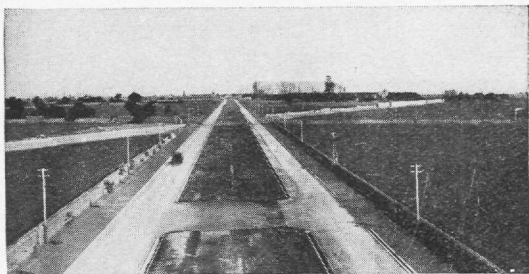
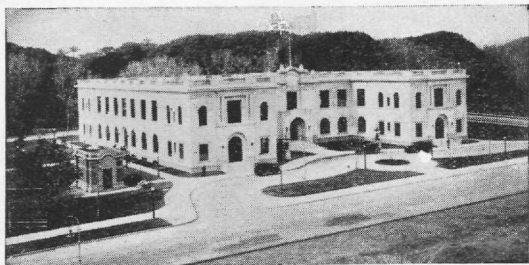
---



Two Cents a Copy

Published five times a week

# The Incas would not know the Peru of today



Construction activities of The Foundation Company in Peru are changing the old order. The layout for the modernization of Lima, Cuzco and thirty other cities is comprehensive and has been carefully planned with this progressive republic.

The Office Building of the Ministry of Public Works would do credit to any community. It represents the public interest in facilities for efficiency in government. Thirty new public schools will be the equal of those of any country.

Highways and Streets are being paved to meet the needs of motor traffic in the cities and between them. Asphalt or concrete are used depending on location and necessity. This familiar looking paver is only a part of the modern equipment seen in Peru.

The New Water Supply System—including underground collecting galleries high in the hills, concrete reservoirs, and conduits of concrete or iron—will soon supplant the well constructed, but entirely inadequate, vitrified clay pipes of the ancients. Sewers and Disposal Plants will guarantee the health of the people.

---

The modernizing of Peru is a typical construction project of this organization.

## THE FOUNDATION COMPANY

CITY OF NEW YORK

Office Buildings • Industrial Plants • Warehouses • Railroads and Terminals • Foundations  
Underpinning • Filtration and Sewage Plants • Hydro-Electric Developments • Power Houses  
Highways • River and Harbor Developments • Bridges and Bridge Piers • Mine Shafts and Tunnels

ATLANTA  
PITTSBURGH  
CHICAGO

SAN FRANCISCO  
LOS ANGELES  
MONTREAL, CANADA

MEXICO CITY  
LIMA, PERU  
CARTAGENA, COLOMBIA

LONDON, ENGLAND  
BRUSSELS, BELGIUM  
TOKYO, JAPAN

BUILDERS OF SUPERSTRUCTURES AS WELL AS SUBSTRUCTURES



## Timken Steel for Timken Bearings

The world's largest producer of electric furnace steel is the Timken Roller Bearing Company. A complete steel mill is part of the marvelously self-contained Timken Bearing plant.

Timken Tapered Roller Bearings are produced on a scale so large, because of their large importance throughout manufacture, construction, mining, agriculture, transportation, and every field in which machinery is used.

Timken Bearings are being designed into every sort of machinery to eliminate excess friction, to save labor, power and lubricant, to increase quantity and quality of output, and to lengthen machine life.

These economies are so important to all the industries that 132,000 Timken Bearings are being added daily to the 150,000,000 Timkens already successfully applied.

Each day—each year—Timken Bearings become of still greater interest to all concerned with machinery. As a potential engineer you have a direct interest in obtaining the valuable little book on Timken Bearings. It will be sent free on request.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

# TIMKEN *Tapered Roller* BEARINGS



**C** The question is sometimes asked: Where do young men get when they enter a large industrial organization? Have they opportunity to exercise creative talents, or are they forced into narrow grooves?

This series of advertisements throws light on these questions. Each advertisement takes up the record of a college man who came with the Westinghouse Company after graduation and within the past ten years.



# Engineer!

## Arrest that Bolt



JOSEPH SLEPIAN

**T**HE Sales Department was talking in emphatic and easily understood language. It was saying, "We want action."

At Westinghouse, action in many cases is another word for research. And research works toward selected goals. In this case the goal was for new apparatus to make unchained lightning more respectful of power plants, lines and equipment.

Today, as a consequence, the electrical industry is the beneficiary of the "Autovalve Lightning Arrester", perfected to a degree of efficiency, long service and universal utility never dreamed of before. Behind that picture you find Joseph Slepian. With two degrees from Harvard, he started training in our East Pittsburgh Shops in 1916. A year later he entered the Research Department.

This was the lightning arrester situation which Slepian took into the research camp: There were two different types of apparatus. One, called the multi-gap, was used chiefly on poles of distribution circuits. When lightning struck, it frequently

caused transformer troubles and damaged equipment. For high-voltage application there was the cumbersome electrolytic arrester. Its performance was good enough. But it required constant attention; was costly of upkeep; and could not be used on poles.

When Slepian perfected the Autovalve Arrester, the demand was so great that orders could not be filled. It was entirely new. One type of apparatus solved the whole problem—no more costly care. It stands up indefinitely, whether used on poles or on the ground—sufficient reasons for yearly sales exceeding \$2,000,000.

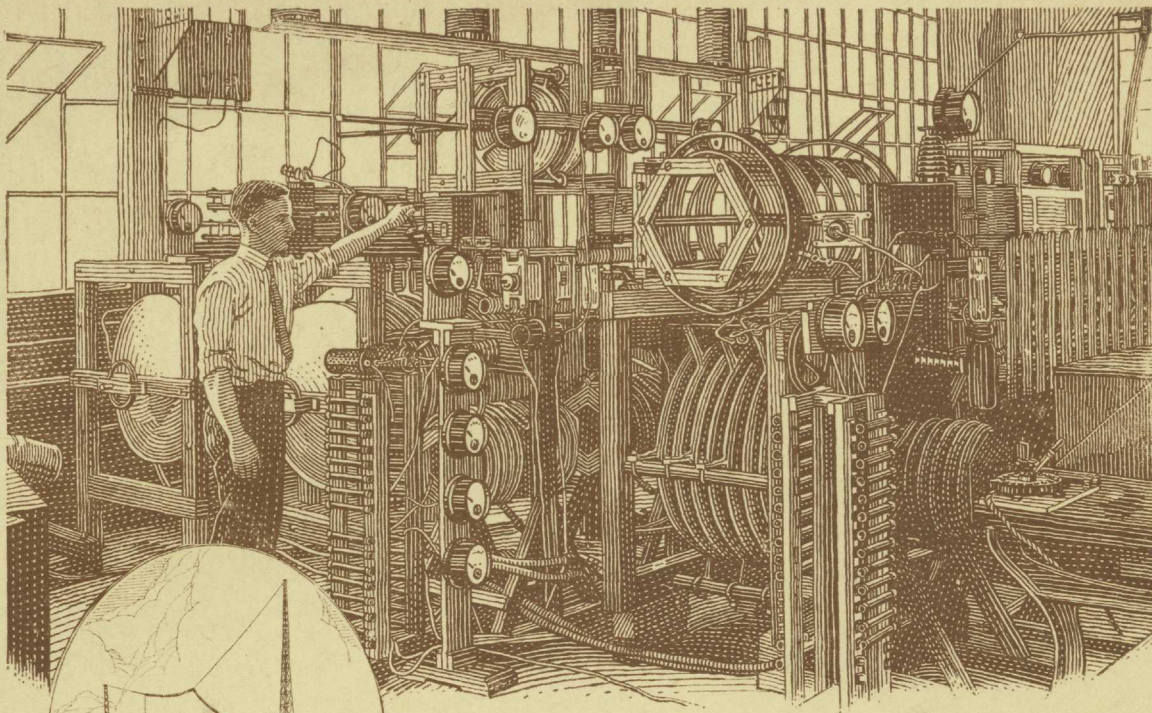
Such results may depend as much on a phase of an engineer's past training as on his immediate research. Take the radio horn which gives the natural tone to Radiola sets. It was Slepian's mastery of mathematics, in which he specialized at Harvard, which contributed toward that big advance in the early days of loud-speaker popularity.

The man with "hidden reserves" is constantly finding them called upon to "climb peaks and cross mountains" in institutions like Westinghouse.

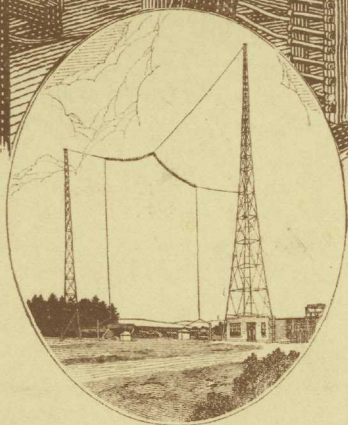
# Westinghouse







*One of the power amplifier stages of the world's first super-power transmitter*



*Antenna of super-power transmitter*

# The World's Loudest Voice

On the rolling plains of South Schenectady, in several scattered buildings, is a vast laboratory for studying radio broadcasting problems. Gathered here are many kinds and sizes of transmitters, from the short-wave and low-power sets to the giant super-power unit with a 50- to 250-kilowatt voice.

Super-power and simultaneous broadcasting on several wave lengths from the same station are among the startling later-day developments in radio. And even with hundreds of broadcasting stations daily on the air throughout the land, these latest developments stand for still better service to millions of listeners.

Only five years old, yet radio broadcasting has developed from a laboratory experiment into a mighty industry. And alert, keen young men have reaped the rewards.

But history repeats itself. Other electrical developments will continue to appear. And it will be the college man, with broad vision and trained mind, who will be ready to serve and succeed.



From the studio of WGY in Schenectady, six miles from the developmental station, there may be controlled a great number of transmitters, one of which is the first super-power transmitter in the world.

WGY, together with its associates, KOA of Denver and KGO of Oakland, is the General Electric Company's assurance to the American public that radio broadcasting shall be maintained upon the highest standards.

A new series of G-E advertisements showing what electricity is doing in many fields will be sent on request. Ask for booklet GEK-1.

**GENERAL ELECTRIC**  
GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK

95-138DH